2017 Spring Electrofishing (SEII) Summary Report

White Lake (WBIC 240800)

Shawano County

Introduction and Survey Objectives

In 2017, the Department of Natural Resources conducted a one night boomshocking survey of White Lake in order to provide insight and direction for the future fisheries management of this water body. Primary sampling objectives of this survey were to characterize species composition, relative abundance, and size structure. The following report is a brief summary of that survey, the general status of the fish populations and future management options for White Lake.

Acres: 190
Shoreline Miles: 3.0
Maximum Depth (feet): 11
Lake Type: Seepage
Public Access: One Public Boat Launch
Regulations: Statewide Default Regulations

WISCONSIN DNR CONTACT INFO.

Jason Breeggemann—Fisheries Biologist
Elliot Hoffman - Fisheries Technician
Wisconsin Dept. of Natural Resources
647 Lakeland Rd.
Shawano, WI 54166

Jason Breeggemann phone and email:715-526-4227; jason.breeggemann@wisconsin.gov

Elliot Hoffman phone and email: 715-526-4231; elliot.hoffman@wisconsin.gov

Survey Information							
Site location	Survey Date	Water Temperature (°F)	Target Species	Total Miles Shocked	Number of Stations	Gear	Number of Netters
White Lake	5/22/2017	60	All	2.82	4	Boomshocker	2

Fish Metric Descriptions
PSD, CPUE, and LFD

Proportional Stock Density (PSD) is an index used to describe size structure of fish populations. It is calculated by dividing the number of quality size fish by the number of stock size fish for a given species. PSD values between 40 - 60 generally describe a balanced fish population.

Catch per unit effort (CPUE) is an index used to measure fish population relative abundance, which simply refers to the number of fish captured per unit of distance or time. For electrofishing surveys, we typically quantify CPUE by the number and size of fish per mile of shoreline. CPUE indexes are compared to statewide data by percentiles. For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state.

Length frequency distribution (LFD) is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals. Smaller fish (or younger age classes) may not always be represented in the length frequency due to different habitat usage or sampling gear limitations.

Survey Method

- White Lake was sampled according to spring electrofishing (SEII) protocols as outlined in the statewide lake assessment plan. The primary objective for this sampling period was to count and measure adult bass and panfish. Other gamefish may be sampled but are considered by-catch as part of this survey.
- The entire shoreline (including the island) was sampled with a boomshocker. All fish captured were identified to species and gamefish and panfish were measured for length.
- Fish metrics used to describe fish populations include proportional stock density, catch per unit effort, and length frequency distributions.

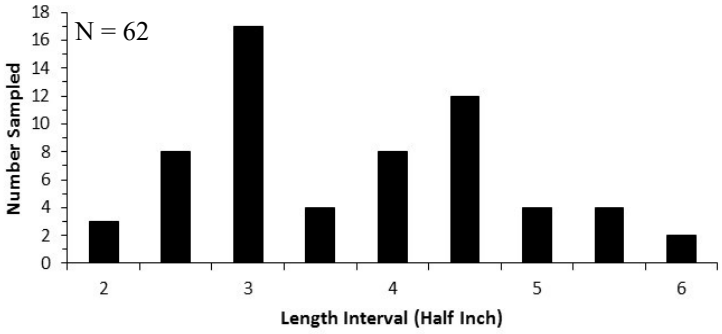
Size Structure Metrics									
Species	Total	Average Length (inches)	Length Range (inches)	Stock and Quality Size (inches)	Stock Number	Quality Number	PSD	Percentile Rank	Size Rating
BLUEGILL	62	3.9	2.1 - 6.3	3.0 and 6.0	51	2	4	8	Low
BLACK CRAPPIE	11	8.0	3.4 - 11.4	5.0 and 8.0	10	5	50	62	Moderate
LARGEMOUTH BASS	62	7.1	4.3 - 9.5	8.0 and 12.0	19	0	0	0	Low
PUMPKINSEED	144	5.1	3.0 - 8.6	3.0 and 6.0	143	23	16	37	Low - Moderate

Abundance Metrics							
Species	CPUE Total (number per mile)	Percentile Rank	Overall Abundance Rating	Length Index	Length Index CPUE	Length Index Percentile Rank	Length Index Abundance Rating
BLUEGILL	62.0	41	Moderate	≥ 7.0 inches	0	0	Low
BLACK CRAPPIE	11.0	64	Moderate	≥ 10.0 inches	5	94	High
LARGEMOUTH BASS	22.0	63	Moderate	≥ 14.0 inches	0	0	Low
PUMPKINSEED	144.0	99	Very High	≥ 7.0 inches	1	61	Moderate

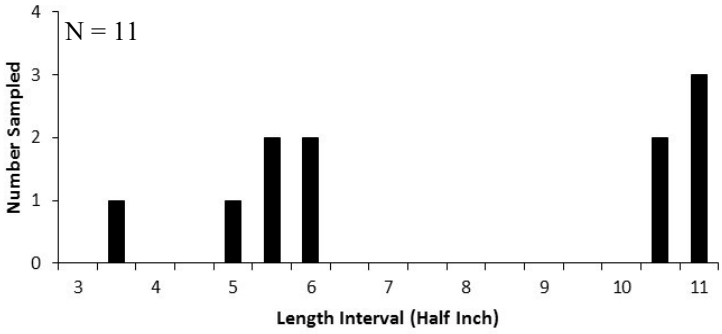
White Lake (WBIC 240800)

Shawano County

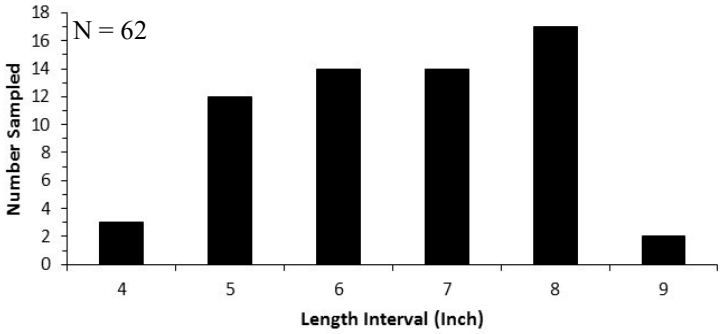
Bluegill Length Frequency



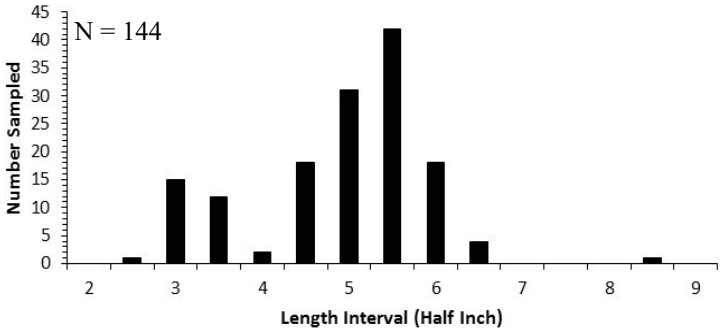
Black Crappie Length Frequency



Largemouth Bass Length Frequency



Pumpkinseed Length Frequency



Summary

- A total of 725 fish from 11 species were collected during our survey. The most frequently encountered and common species were black bullhead (349), pumpkinseed (144), green sunfish (84), bluegill (62), and largemouth bass (62).
- Other fish species sampled in low abundance included black crappie (11), blacknose shiner (1), central mudminnow (2), golden shiner (4), green sunfish x pumpkinseed hybrid (4), and northern pike (2).
- Largemouth bass was the dominant gamefish captured in our survey. Abundance metrics showed a moderate density of largemouth bass, whereas size structure metrics were found at very low levels. The largest bass sampled was only 9.5 inches.
- Only two northern pike were captured during electrofishing. However, fyke netting would be a more appropriate sampling technique to assess the northern pike population.
- Panfish populations were comprised mainly of pumpkinseed, bluegill, and black crappie. Bluegill were found at moderate densities and showed small size structure with the largest bluegill being 6.3 inches. Black crappie were also found at moderate densities, but three individuals larger than 10 inches were captured. Pumpkinseed were found in high abundance with the majority being 5-6 inches in length. The largest pumpkinseed sampled was over 8 inches long.
- The abundance of highly tolerant species such as black bullhead and green sunfish combined with the small size structure of bluegill and largemouth bass indicates that White Lake is recovering from a winterkill that took place a couple of years prior to the survey. Some gamefish and panfish must survive through the winterkills to re-establish populations in subsequent years.
- In 2009, the last year White Lake was sampled, only fathead minnows, black bullhead, and central mudminnow were captured, indicating a winterkill likely took place just prior to that survey.

Management Options

This survey was primarily intended to assess largemouth bass and panfish populations. Other species are captured but different survey techniques are typically used to better assess their population metrics. Therefore, management recommendations are focused on bass and panfish.

Largemouth Bass

- One or two strong year classes of small largemouth bass are present in White Lake. These year classes are likely young, hatching after the last winterkill. They should grow to provide a quality fishery in the next couple of years if future winterkills can be prevented.
- Continue to monitor the fishery. Stocking could be used as a tool to aid in the recovery of the fishery in the future only if efforts are made to prevent future winterkills.

Panfish

- Moderate-high densities of black crappie, bluegill, and pumpkinseed were observed. All three species show evidence of year classes that are nearing sizes desirable to anglers. These year classes should provide a quality fishery in the next couple of years if winterkills are prevented. No other management action recommended at this time.

Other Management Objectives

- Efforts should be made to prevent future winterkills that significantly reduce the fishery. The most practical solution is wind powered or electrical aerators. Preventing winterkill will ensure a more stable and productive fishery in the future.
- White Lake has a maximum depth 11 ft. which could allow submersed aquatic plants to grow throughout much of the lake. Lake management organizations should work with WDNR staff to manage invasive aquatic plants as necessary. High densities of invasive plants often inhibit the ability of predators to effectively forage resulting in slow growing predator populations. Additionally prey fish (e.g., bluegill) populations can become overabundant and slow growing when predators cannot effectively forage on them.